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ABSTRACT

Evaluative intervention studies which have examined the potential of imaginative play to foster young children's cognitive and social development provide the focus of this literature review. Four criteria were used to select the studies: (1) the study's focus was on the use of imaginative play to foster cognitive growth; (2) the studies were experimental or quasi-experimental and conducted within the past 10 years; (3) the age of the participant population fell within the range of 3 through 8 years; and (4) the beginning and ending points or the length of time the study was conducted and in operation was 4, 5 or more consecutive months. Investigation of this literature yielded the following results. First, imaginative play can be used for purposes of cognitive and social development in young children. Second, child development theories on which programs rest can influence the type of play exhibited by children in these programs. Third, particular types of programs can have differential effects on the kinds of play shown by children in these programs. And fourth, imaginative play can have differential effects on children depending on their current level of IQ and other selected situational variables. Additional research is further needed to understand the role of imaginative play in children's development. (Author/MP)

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EVALUATIVE INTERVENTION RESEARCH IN CHILD'S PLAY

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Evaluative Intervention Research in Child's Play

Abstract

Reviewing selected evaluative intervention studies that have principally examined the potential of imaginative play in young children to foster cognitive and social development, the thrust of the research narrative goes beyond the commonly held notion that imaginative play is an essential mechanism for normal growth. The underlying rationale for evaluative intervention research studies in imaginative play is based on several theoretical assumptions: (a) imaginative play is observable, (b) imaginative play is necessary for cognitive development, (c) imaginative play is often underdeveloped in young children, and, (d) imaginative play can be used as a vehicle for purposes of development and learning. Based on the rationale and a five-point criteria, several studies were selected for review. They were: (a) Gebert and Yawkey(1980), (b) Johnsnn, Ershler and Bell(1980), (c) Yawkey (1980), (d) Yawkey and Silvern(1978), (e) Kelly and Yawkey(1978), (f) Saltz, Dixon, and Johnson(1977), and, (g) Saltz and Johnsnn(1974).

The survey of the selected evaluative intervention studies of imaginative play showed a number of interesting results. First, all the investigations showed that imaginative play could be used for purposes of cognitive and social development of young children. Second, several of the studies showed that the child development theories on which programs rest can influence the type of child's play exhibited in these programs. Third, particular types of programs can have differential effects on the kinds of play shown by the youngsters in these programs. And fourth, imaginative play can have differential effects on children depending on their current level of IQ and other selected situational variables. Additional research is further needed to understand the role of imaginative play in development.

EVALUATIVE INTERVENTION RESEARCH IN CHILD'S PLAY

A group of youngsters are playing "Mommies and Daddies" in the housekeeping corner of the classroom. Reynaldo and Susan are "at-work" make-believing they are "Bird-People" exploring Mars for the first time; other children in groups are role playing their favorite TV characters. Shanda and Leslie although sitting side-by-side in the block corner are playing independently. Shanda pretends to be a truck driver roaring down an interstate in an 18-wheeler; John make-believes he is the "Green Dragon." These and other numerous play themes and episodes are repeated thousands of times per day throughout our country in our preschool, kindergarten, and primary grade classrooms. Regardless of whether a group of children are engaging in meaningful pretend-dialogue as in sociodramatic play, using pretend somewhat in a unified group-fashion as in dramatic play, or individually engaged in parallel or solitary pretend play, their actions involve imaginative, make-believe, pretend and symbolic play. Through imaginative play, youngsters change themselves into roles of heros, heroines, villians, and the hunters and the hunted. Imaginative or make-believe play permits them to change themselves into other people, situations, and objects as seen through their motoric and/or verbal enactments of their roles (Yawkey, 1979). Indeed, the world of young children is replete with verbal and/or motoric actions which show that they change themselves into objects, people, and situations other than themselves.

Even though pretend play pervades all dimensions of the child's world (as well as the adult's milieu through rule governed and recreational games), it, as a developmental and learning action, is little understood. Historically, Spencer (1855) saw play as a release of surplus energy from within

youngsters; Hall (1906) viewed it as a recapitulation of a race-both biologically and sociologically. Further, Freud (1959) and Erikson (1956) believed more or less that play serves the child through readjustment for future and reallignment of past experiences. Currently, developmental theorists such as Piaget (1962), Vygotsky (1967) and Saltz (1978) hypothesized that play serves cognitive growth through which youngsters free themselves from the constraints of reality and move intellectually to more advanced and operative levels of thinking. In addition, Singer (1973) and Singer and Singer (1981) viewed imaginative play as a liberator of stimulus boundness which permits sound growth of and moves the individual toward a more healthy integrated personality. In summarizing some additional current research, Rubin (1979, p. 69-70) notes that,

> more recently, theorists have considered play of young children to contribute to a mixed bag of developmental virtues including problem-solving and tool-using skills, creativity, communicative and language development, Piagetian operativity, cooperation, perspective-taking, sex-role development and cultural transmission.

Rubin (1979, p. 70) in summarizing, further, notes that in these cases of current research, "the theoretical viewpoint has clearly been that play is an essential mechanism for normal development." Even though much was and is currently written over the past and present decades, pretend play of the young child is still largely remains a mystery (Singer, 1973).

However, along with this past interest and current resurgance of pretend play, there is a small but growing body of evaluative intervention research that explores the use of imaginative play as a vehicle which encourages cognitive development and learning in young children (Saltz & Johnson, 1974). Evaluative intervention research in pretend play are investigations that principally examined the potential of imaginative play in young children to foster their cognitive growth and learning. In this instance, and from

another perspective, pretend play (and its various forms, for example, socio-dramatic, dramatic) is viewed as a vehicle that may expand the youngsters' potential to make-believe for purposes of cognitive development and learning. More specifically, the underlying rationale for evaluative intervention studies in pretend play are based on several theoretical assumptions. These assumptions follow:

(a) Imaginative play is performed overtly and covertly and its overt manifestations can be observed and interpreted in young children through their behavioral actions and activities (Ellis, 1973).

(b) Imaginative play actions and activities can be constructively reinforced, shaped and trained in varying degrees: 1) through experimental manipulation of the quantity and quality of play materials in the environment; 2) by increasing the opportunity for the young child to demonstrate these self-motivated behaviors; and, 3) through adult suggestions (NOT directions) that can be used to encourage playful interaction between the play environment and the child engaged in pretend (Saltz, Dixon & Johnson, 1977; Saltz & Johnson, 1974; Weikart, Rogers, Adcock & McClelland, 1970).

(c) Imaginative play is necessary for cognitive development (Piaget, 1962, Vygotsky, 1967).

(d) Imaginative play is ". . . important for the development of other intellectual and social abilities (Saltz & Johnson, 1974, p. 623)."

(e) Imaginative play is "often underdeveloped in young children (Saltz & Johnson, 1974, p. 623)" and especially in those youngsters from low income populations (Feitelson & Ross, 1973; Freyberg, 1973; Smilansky, 1968).

(f) Imaginative play, used as a vehicle to systematically expand the child's opportunity and maximize the potential to make-believe for purposes of

development and learning, can more effectively be examined in long term intervention studies of four, five, or more months in duration (vis-a-vis short term ones lasting a day or two through several weeks).

Aptly put by Saltz and Johnson (1974, p. 624), evaluative intervention research of pretend play systematically attempts, ". . . to evaluate the contention that any or all of these types of [imaginative] activities [and actions] can have a beneficial effect on cognitive functioning." Thus, it is obvious to even the causal reader that evaluative intervention research in child's pretend play neither suggests nor implies the "dictum" of "more play less educational and emotional problems to solve" (Tizard & Harvey, 1977). Second, it should also be apparent that the research results of any intervention research regardless of the focus do not imply a directional and causal agent such as, "imaginative play causes cognitive, social, or personality development."

Accordingly, it is the primary purpose of this research narrative to survey and summarize evaluative intervention research in child's play. Second, and based on the results of these studies, the beneficial effects that pretend play can have on cognitive functioning of young children, three through eight years of age are described, and discussed. Third, several conclusions suggested or implied from the results of these studies for further investigations are explained.

Overview of Evaluative Intervention Research Studies in Pretend Play of the Young Child

Several evaluative intervention studies were selected for review. The criteria used to select these studies were:

(a) The focus of the investigation was on the use of imaginative play to foster cognitive growth.

(b) The studies were experimental or quasi-experimental (Campbell & Stanley, 1963) and conducted within the past 10 years.

(c) The age of the participant population employed in the investigations fell within the range of three through eight years.

(d) The beginning and ending points or the length of time the study was conducted and in operation was four, five or more consecutive months. Using the above criteria to screen the investigations, the following were selected for review: (a) Gebert and Yawkey (1980), (b) Johnson, Ershler and Bell (1980), (c) Yawkey (1980), (d) Yawkey and Silvern (1978), (e) Kelly and Yawkey (1978), (f) Saltz, Dixon, and Johnson (1977), and (g) Saltz and Johnson (1974).

In the first evaluative intervention study, Gebert and Yawkey (1980) with 120 young children explored the effects of two types of sociodramatic play (i.e., with props and without props) and control treatments and two differing types of reading programs (i.e., Keys to Reading versus Houghton-Mifflin series) on selected role play and reading measures. The focus of the research was based on Garvey's (1977), Fein's (1975), and Pulaski's (1973) notions that certain types of play objects had the potential to initiate prescribed play sequences and novel language repertoires, and to influence the quantity of imaginative play. Second, operationalizing the relationships between child development orientations for sound educational programming and play behaviors (Seavers & Cartwright, 1979, Tizard, 1977), Tizard, Philps and Plewis (1976) noted that the type and quantity of pretend play of the young child varied as a function of the kind of educational programs. Conceivably, reading programs grounded on and developed from distinctly different

educational reading philosphies might have differing effects on role play and reading abilities of young children.

Sixty children six years of age and 60 youngsters seven years old were enrolled in 6 first and 6 second grade classrooms in four elementary schools in the same district in geographically rural and isolated Appalachian Central Pennsylvania. All of the participants represented a low-income population as indicated by the yearly median income of heads-of-household of $6420 (Warner, Meeker & Eels, 1960). The children were randomly selected within but assigned by classrooms to one of six treatment conditions: (a) sociodramatic play with props/Keys to Reading; (b) sociodramatic play with props/Houghton-Mifflin; (c) sociodramatic play without props/Keys to Reading; (d) sociodramatic play without props/Houghton-Mifflin; (e) control (i.e., no sociodramatic play)/Keys to Reading; and, (f) control/Houghton-Mifflin.

All children were pre- and post-tested on the Gates-MacGinitie and Keys to Reading Competency Tests and Rehearsal of Learning and Experiencing (R.O.L.E.) Play Inventory in September and in April of that year, respectively. The treatments lasted six consecutive months. The participants in the sociodramatic play groups with props (across both reading programs) individually read and then rehearsed these selected stories through sociodramatic play. The stories were changed on a weekly basis across the duration of the study, had a readability level of 1.1 and were not read or heard before by the children. Each of the weekly role-play sessions/groups lasted 30 minutes in duration. And, there were two groups of five children in each of the four classrooms of sociodramatic play without props per reading program. In each of the sociodramatic play groups with props, the children were indirectly guided by the adult to: (a) assign and define roles, (b) select props to

use in their imaginative transpositions, (c) role play the story; and, (d) discuss the story content at the end of the sociodramatic session. The children in the sociodramatic play groups without props (across both reading programs) used the same stories and followed the same above procedures in the play sessions except they did not use play objects. In the control (i.e., no sociodramatic play) groups (across both reading programs), the participants per classroom were: (a) divided up into two groups each having five students, (b) permitted to freely interact within groups; and, (c) assigned tasks such as pasting and cutting, putting together puzzles, and inserting geometric blocks into form boards. As per the experimental treatment, an adult indirectly guided the children in the groups and the group tasks were changed from week to week.

A 3 (i.e., sociodramatic play with props, sociodramatic play without props, control treatments) x 2 (i.e., Keys to Reading versus Houghton Mifflin programs) multifactorial analysis of variance hierarchical design and analysis (Myers, 1971) using role playing and reading as covariates was performed. The covariates were constructed through canonical correlation performed between the set of pre-test scores and two principal components (to maximally predict these dependent variables to the two components). Further, a principal component analysis was initially used to summarize the five post-test scores as dependent variables (i.e., Keys to Reading and Houghton Mifflin recognition and comprehension as well as role play scores) into a role play and reading component (which in turn maximized the available degrees of freedom in the hierarchical design). With, conventional assumptions of the analysis of variance model met, the results of the 3 x 2 MANOVA indicated: (1) significant treatment of the effects [Hotelling-Lawley Trace = 14.07,

F approx. (4,4) = 7.02, $p < .05$]; but, (2) no significant program [Hotelling-Lawley Trace = .07, F approx. (2,3) = .11 $p > .05$] or interaction effects [Hotelling-Lawley Trace = .65, F approx. (4,8) = .65, $p > .05$]. In addition, the results of a univariate analysis of covariance (ANOCOVA) (using the Bonferroni additive inequality of .025 required for significance), indicated a significant treatment effect on the role play component [$F(2,4) = 21.92$, $p < .025$]; but (2) no significant treatment effect on the reading component [$F(2,4) = .73$, $p > .025$]. To determine which of the treatment/s within the role play component produced these significant effects, the results of the Bonferroni t Tests of Differences (setting the family-wise error rate at .05 and using the Bonferroni additive inequality of .017 for significance) indicated that the control treatment (i.e., no sociodramatic play) differed significantly from the experimental treatment of sociodramatic play without props [$t(4) = 4.67$, $p < .017$] as well as from the experimental treatment of sociodramatic play with props [$t(4) = 6.36$, $p < .017$]. Neither of the experimental treatment groups differed significantly from each other [$t(4) = 1.47$, $p > .017$].

In sum, there were no significant differences between types of treatment or between the two reading program groups on the reading components. Also, there was a significant difference between experimental and control treatments but not between reading programs on the role play component. Further, participants enrolled in sociodramatic play with and without props yielded significantly higher scores than those in the non-role play (i.e., control) groups on the role play component. Finally, the participants in the two experimental groups did not significantly differ from each other.

Johnson, Ershler and Bell (1980) was the second evaluative intervention study selected for discussion. Seventeen children, 9 boys and 8 girls, in a

discovery-oriented preschool program and 18 youngsters, 9 boys and 9 girls, in a formal preschool program were observed over 11 weeks in a university nursery center. The objectives of the research were to: (a) analyze and compare play behaviors of children enrolled in a formal and those attending a discovery program in a preschool setting; (b) determine and compare the nature of play themes within and between the two types of programs; (c) determine and compare the nature and frequency of the transformations within and between the two different preschool programs; (d) compare gender differences of the children in play behaviors within and between the discovery and formal preschool programs; and, (e) examine and compare the relationship between age and categories of play, themes and transformations across the varying preschool programs. Based on the notions of Jackson and Angelino (1974) that young children learn through play and that play has value for development, free play behaviors of children attending programs based on a formal-education model and those resting on a discovery approach were compared. In support Tizard (1977) noted that a general relationship should exist between educational philosophy as actualized through preschool programs and play behaviors of young children. Second, the research results of Tizard, Philps and Plewis (1976) showed that less symbolic and more functional play were evidenced in children attending traditional vis-a-vis language enrichment programs. Conceivably, play behaviors,

> . . . of children attending the formal and discovery programs would differ; . . . children in the formal program were expected to exhibit more goal-directed play, while those in the latter were expected to show more functional or manipulative play (Johnson, Ershler & Bell, 1980, p. 272).

In both preschool programs, the children were drawn from middle to upper-middle class populations that served the university preschool center. The

formal-education model, enrolling 18 children, focused on cognitive skills derived obstensively from Piaget's theory of logical concept growth. As such, it was based on interpretations of Ausubel's (Ausubel, Novak & Hanesian, 1978, Lawton, 1978) learning theory which stressed knowledge and skill learning as the basis for preschool education. Further, emphasis in the formal program was on direct teaching and incorporated Piagetian concepts into Ausubelian instructional strategies. Enrolling 17 youngsters, the discovery education program centered on the belief that the role of preschool programming was to foster the processes of logical thought development. In this program, process vis-a-vis product (and skill acquisition and attainment) was stressed.

Each of the participants were observed in the 40 minute free play period for a total of 20 one-minute observations over the 11 week duration of the project. The types of toy objects used by the children and the adult-child ratio of 1 to 4 were similar across program models. The schedule varied however with more free play in the discovery versus the formal oriented programs. The order of rater-observations was randomized across programs for the three observers. The children were observed and scored using the play categories of: (a) unoccupied, (b) onlooker, (c) solitary, (d) parallel, (e) intervention, (f) functional, (g) constructive; and, (h) symbolic. Along with the type of play, the participants were also rated on duration of their play episodes,

> . . . defined as a unit of observation of at least 15-second duration with only one type of cognitive/social play occurring . . . [and] . . . up to three episodes per minute of observation were scored (Johnson, Ershler & Bell, 1980,, p. 272).

Analyzing the observations for the main effects of program, gender differences and other independent variables of interest, the results were:

(1) 58% of the time the children were observed in the formal program was devoted to constructive play while 31% of the time those in the discovery models were observed in this play category [F (1,34) = 37.9, $p < .01$]; (2) 12% of the time the children in the formal model were engaged in functional play while 36% of the time was spent (by those in this discovery program) in this type of play [F (1,34) = 66.2, $p < .01$]; (3) 15% of the time the preschooler in the formal program were observed in nonplay (i.e., unoccupied and onlooker) as compared to 22% for those in the discovery model on this activity [F (1,34) = 6.97, $p < .01$]; (4) no significant program by gender interaction effects were observed; (5) significant main effects of gender (across programs) were observed with girls more likely to engage in construction play than boys [F (1,34) = 7.41, $p < .01$] and boys were more likely to engage in functional play than girls [F (1,34) = 7.12, $p < .01$]; (6) across programs using concrete objects rather than using no props in transformational settings and using symbolic play themes based on imitation rather than fantasy were more common; (7) no significant program differences existed on the amount of symbolic play; (8) significant program effects appeared for total transformations used during symbolic play with children in the formal yielding significantly higher scores than those in the discovery programs on this activity [F (1,34) = 6.59, $p < .01$]; (9) no significant main and interaction effects were observed in program and/or gender on the total percent of social play categories (i.e., solitary, parallel and interactive); (10) age was more highly correlated with interactive ($r = .38$) and parallel ($r = -.35$) vis-a-vis solitary play ($r = -.19$); and, (11) age correlated with object transformation of replica ($r = .01$), substitute ($r = .09$) and imaginative ($r = .40$).

In sum, types of play that children exhibited between the programmatic models differed. The results suggested that, ". . . the theoretical foundations upon which a program is based can influence the young child's play in a preschool setting (Johnson, Ershler & Bell, 1981, p. 274)." Additional research should analyze specific features of preschool programs which parallel the application of child development orientations and educational ideologies such as teacher-child interactions and classroom structuring.

In a third study, Yawkey (1980) investigated the effects of social relationships curricula and sex differences on reading readiness and imaginative abilities in five year old children. Social relationships regarded by Mand (1974) as the "Fourth Basic 'R'" was defined as the cognitive/social capacity of the individual to relate to and be able to perceive the "other." The research bases for the investigation were: (a) the notions of theorists such as Tanner and Tanner (1975) and Palmer, Cazden, and Glick (1971) who supported the importance of planning, implementing, and evaluating social relationships curricula for cognitive/social growth in preschool programming; and, (b) the results of investigations conducted by Aspy and Roebuck (1976) and Singer (1974) which showed that the growth of group relations was linked to social/affective processes and to cognitive functioning. Accordingly, the development and implementation of social relationships curricula in kindergarten classrooms might have effects on children's cognitive/social level of imaginativeness in group settings and on their intellectual abilities in reading readiness. Thus, the major hypotheses for the investigation were that there were no differences between children in social relationships curricula and control treatments and between girls and boys on imaginativeness and reading readiness abilities.

Ninety-six children, five years of age, across four elementary schools in two adjoining suburban school districts were employed in the investigation. There were 24 children per classroom, 12 girls and 12 boys and all represented middle class populations as represented by the white collar occupations of the heads-of-household (Warner, Meeker & Eels, 1960). The study was conducted over seven consecutive months with pre- and post-testing occurring in September, and May, respectively. The pre- and post-tests administered were the Gates MacGinitie Reading Readiness Test and Singer Imaginativeness Inventory. After random assignment to experimental and control treatments and completion of preassessments, the treatments were initiated.

The duration of the experimental and control treatments was 15 minutes per day, five days per week across seven consecutive months. The experimental and control treatments were conducted by the classroom teachers after they had received training. The adults in the experimental groups were trained to develop and implement social relationships curricula based upon role playing as a vehicle. The use of role play along with its eight basic strategies of implementation were explained in detail elsewhere (Yawkey, in press). Briefly, however, the role play and its strategies focused on rehearsing experiences through role enactments in classroom settings gained in shared communication, field trips, stories, and other sources which emphasized cooperation, helping, and problem-solving. In the control groups, the teachers were trained to plan and implement paste and cut and other craft activities generated from holiday themes and special events but emphasizing social relationships or using role play were excluded from control treatments and in their classroom programming.

Upon completion of post-testing, two initial analysis were completed. The results of a 2 (i.e., experimental versus control treatment groups) x

2 (i.e., boys versus girls) analysis of variance (ANOVA) on Peabody Picture Vocabulary Test Scores (administered in pre- but not post-testing assessment sessions) showed no significant interaction or main effects for treatment [F (1/92) = 1.22, $p > .05$] and sex [F (1/92) = 1.95, $p > .05$]. The results of a 2 x 2 ANOVA run independently on pre-test scores showed no significant main or interaction effects across either of the Gates-MacGinitie or Singer measures. For the major pre-post analyses, the results of the 2 x 2 factorial analysis of covariance, run independently on each of the dependent variables, indicated significant main effects for treatment [F (1/92) = 4.71, $p < .05$], for sex [F (1/92) = 12.71, $p < .05$] but no significant interaction effects [F (1/92) = 1.45, $p > .05$] on the Gates-MacGinitie and showed significant main effects for treatment [F (1/92) = 6.01, $p < .05$] and for interaction effects [F (1/92) = 15.87, $p < .05$] on the Singer Imaginativeness Inventory.

In sum, the results indicated that: (1) on readiness readiness abilities, the youngsters in the social relationships group yielded significantly higher mean scores than those in the control and girls significantly outperformed boys; (2) on measures of imaginativeness, the children in the social relationships curriculum group yielded significantly higher means scores than those in the control and girls outperformed boys; and, (3) on imaginativeness, the girls in the social relationships group performed significantly better than boys in the control conditions.

The fourth evaluative intervention research study was conducted by Yawkey and Silvern (1978). The study enrolled 240 participants, 80 youngsters per each of three age levels of five, six, and seven. It focused on the effects of imaginative play on language development using a modified cloze procedure for language assessment. Theoretically, the study was based on Piaget's (1962) hypothesized connective between representational thought and

imaging and between representational thought and the child's play -- which was thought to be a basic and necessary condition for the development of thinking structures. " . . . The relationship of play to symbolication or mental representation is in theory the foundation for relating play and languages (Pulaski, 1973, p. 213)." The major hypotheses for the investigation were:

(a) There were no differences between experimental (i.e., imaginative play treatment) and comparison groups on language abilities in young children.

(b) There are no differences between age groups, five, six, and seven, in the experimental group on language abilities.

(c) There are no differences in the experimental group between play treatments requiring children to display self-action and those treatments requiring youngsters required to demonstrate puppet-action to represent a story on language abilities.

(d) There are no differences in the experimental group between play treatments requiring participants to demonstrate play actions -- <u>after</u> and one requiring them to show play actions -- <u>during</u> a story on language abilities.

The 240 participants, ages five, six, and seven, were pulled from low income areas given the rural settings of the schools and all the participants qualified for supportive Federal assistance programs and services. There were 120 participants randomly assigned to the experimental treatment and 120 to the comparison groups.

Within the experimental group of 120 youngsters, 60 of them used puppets and 60 used body action to rehearse a 200 word selection from Ward's (1952)

The Biggest Bear after hearing it. Within the experimental group, 30 children rehearsed the story during the episode (i.e., at the conclusion of each set of 50 words in the passage) and 30 practiced it after the entire passage was heard (i.e., at the conclusion of the entire set of 200 words). Regardless of whether the children practiced the story, during or after hearing it, the total amount of time spent on rehearsal across both during and after conditions was the same. In the contrast group, 120 youngsters heard the story and at the end of the 200 word passage they were asked selected questions over the content.

There were several analyses conducted -- all of which employed the cloze measure as the dependent assessment. For the dependent cloze measure, every tenth word in the original story of 200 words was eliminated and a "buzz" inserted on the taped story. In the assessment, the tape was stopped when the "buzz" occurred and the child was asked to fill-in the missing word in the sentences. In turn, the 20 responses filled-in per child was scored as correct (and given one point) or incorrect (and given zero points) on the basis of whether or not the word filled-in was the original target word missing from the narrative.

The results of the 3 (i.e., age levels of five, six, and seven) x 2 (i.e., experimental versus contrast groups) analysis of variance (collapsing for forms and timing of play conditions in the experimental group) indicated that children in experimental play group remembered significantly more words from the story than those in the control [F (1/224) = 7.45, $p < .05$] and that each age group differed significantly from one another [F(2/224) = 30.19, $p < .05$] on the total amount of correct words remembered from the story. The results of the 3 (i.e., age levels of five, six, and seven) x 2 (i.e., puppet versus self action play) x 2 (i.e., practicing the story during versus after

hearing it) analysis of variance indicated: (1) significant main effects for age [F (2/108)=8.55, $p < .05$] with six and seven year olds remembering more correct words than five year olds; (2) significant triple order interaction effects of play forms, timing and age [F (2/108)=3.49, $p < .05$] showing subsequently that five year olds -- using puppets during and self-action after significantly outperformed other five year olds -- using puppets after and self-action during on the number of correct words remembered from the story; and, (3) nonsignificant main effects for forms of play [F (1/108)=1.37, $p < .05$] and timing [F (1/108)=1.04, $p < .05$] and for all other interaction effects.

In summarizing, it appears that: (1) children in imaginative play remembered a significantly greater number of correct words than those in the comparison group of no play, (2) six and seven year olds yielded significantly more words correct than fives, and, (3) five year olds using puppet actions during and using self-action after yielded significantly more words correct than those fives using puppet after and self-action during the story.

The fifth evaluative intervention study was conducted by Kelly and Yawkey (1978). With 168 participants, ranging in age from 5.5 to 6.3 years with a mean of 5.8 years, the study focused on effects of imaginative play on young children's abilities in discovery versus traditional programs. The foundation for the study was based on Tizard's (1977) notion of a relationship between child development orientations and school programs and Sever and Cartwright's (1977) ideas that actual practice in classroom settings rest on the implications derived from child development theories and ultimately from the philosophical views of man. More specifically, Anastasiow, Sibley, Leonhardt, and Borich (1970) and Kagen (1967) noted that discovery programs stressed learning through inductive reasoning and focused on enhancement of memory processing, general intellectual potency, intrinsic rather than

extrinsic motivation and the heuristics of problem-solving abilities [through Weber's (1980) notion of activity and involvement]. Conceivably, imaginative play might have the potential to facilitate children's abilities in discovery oriented programs to a greater degree than traditional programs because of similarities between the cognitive processes used in symbolic play and those used in discovery (Piaget, 1962).

The 168 participants, enrolled in 12 kindergarten classrooms in three different rural school districts, represented a low income population as evidenced by the blue-collar occupation and welfare subsistence of the heads-of-household (Warner, Meeker & Eels, 1960). In addition, all the children lived in the rural and geographically isolated Appalachian section of Western Pennsylvania. From within each of the 12 classrooms, 14 youngsters were randomly selected and assigned to one of four imaginative treatment groups (i.e., fantasy; reality; nonfantasy; nonreality) in discovery oriented and in traditional programs with the restriction that there were the same number of boys and girls per treatment and program groups.

The participants were pre- and post-tested on the Gates MacGinitie Reading Readiness Test and the Rehearsal of Learning Experiences (R.O.L.E.) Play Inventory in September and June, respectively; the treatments lasted seven consecutive months. The discovery-oriented program focused on large, small and individual involvement in actions and activities which permitted children the time to experience and infer principles of learning and develop growth concepts. The adults served as guides and the discovery program was characterized as flexible, learning center and sensory oriented and stressed problem solving. The traditional program centered on large group instruction and adult directed activities with supporting reinforcement using worksheets,

verbal reciting and teacher-learning aids. The traditional classrooms had distinct subject matter disciplines and units of instruction which the teachers used for instructional content. In addition, imaginative play treatment conditions of: (a) reality; (b) fantasy; (c) nonreality; and, (d) nonfantasy were nested within the discovery and traditional programs. The children within the imaginative-reality treatment across both programs were required to employ imaginative play using real life situations, people, events, and stories. The participants in the imaginative-fantasy treatment across programs used imaginative play based on fantasy situations, people, events, and stories. Those in the nonreality and nonfantasy imaginative groups were simply required to perform daily routines characteristic of both programs without supplementing them with either real or fantasy play routines. These nonimaginative play groups were employed in the design as control treatment groups across programs. These imaginative and nonimaginative treatment groups across programs were 30 minutes in duration and were held daily across seven months of the investigation.

The results of two 4 (i.e., reality; fantasy; nonreality; nonfantasy groups) x 2 (i.e., discovery versus traditional programs) x 2 (i.e., boys versus girls) analyses of variance run separately on pre-test Gates MacGinitie Reading Readiness and pre-test R.O.L.E. Play scores yielded no initial significant main or interaction effects. Using two 4 x 2 x 2 analyses of covariance run on pre- and post-tests of the Gates MacGinitie and R.O.L.E. Play assessments, the results indicated a number of significant findings. For the Gates MacGinitie measures, the analysis indicated significant main effects for treatment groups [$F(3/151) = 6.14$, $p < .01$]; but no significant main effects for program [$F(3/151) = 1.07$, $p > .05$], for sex [$F(1/151) = .05$, $p > .05$] or for interaction effects. To determine where the significant

differences existed within the treatment groups, t test analyses were run on treatment means using the post-test Gates MacGinitie scores. The results indicated significant differences: (1) between reality and fantasy treatment groups ($t = 2.34$, critical value = 1.68, $p < .05$); (2) between fantasy and nonreality treatment groups ($t = 3.48$, critical value = 1.68, $p < .05$); and, (3) between fantasy and nonfantasy treatment groups ($t = 3.36$, critical value = 1.68, $p < .05$). There were no other significant differences observed between treatment groups. The results showed that children in the fantasy group yielded significantly higher post-test means than those in the reality, nonfantasy and nonreality groups.

For the R.O.L.E. play measures, the results of the 4 x 2 x 2 analysis of covariance indicated significant main effects for treatments [$F (3/151) = 9.41$, $p < .01$] and significant interaction effects for program by treatment [$F (1/151) = 16.79$, $p < .01$]. No other main or interaction effects were significant. To determine where significant differences existed within the treatment groups, t test analyses were run on post-test treatment means of the R.O.L.E. play scores. The results indicated significant differences between: (1) fantasy and reality ($t = 2.56$, critical value = 1.68, $p < .05$); (2) reality and nonreality ($t = 4.01$, critical value = 1.58, $p < .05$); (3) fantasy and nonreality ($t = 5.33$, critical value = 1.68, $p < .05$); and, (4) fantasy and nonfantasy ($t = 4.87$, critical value = 1.68, $p < .05$). There were no other significant differences observed between treatment groups. Based on the significant interaction effect of program by treatment effect, the results of the Scheffé post hoc test on post R.O.L.E. play mean scores indicated that; (1) children in the discovery with the fantasy treatment yielded significantly higher scores than those in the traditional program with

reality treatments (Scheffé statistic = 1.39, critical value = 1.37, $p < .05$); and, (2) children in the discovery with the reality treatment yielded significantly higher scores than those in the traditional with the fantasy treatment (Scheffé statistic = 3.53, critical value = 3.37, $p < .05$).

In sum, it appears that children in the fantasy yielded significantly higher mean scores than those in the reality treatment groups and those in the fantasy yielded significantly higher scores than those in either the nonreality or nonfantasy treatment groups on Gates MacGinitie scores. Second, youngsters in the fantasy treatment yielded higher mean scores than those in the reality, nonreality and nonfantasy groups and those in the reality yielded significantly higher scores than those in the nonreality treatment groups on R.O.L.E. play scores.

The sixth evaluative intervention study was conducted by Saltz, Dixon, and Johnson (1977) with 54, 45, and 47 children enrolled in the study in each of three successive years. These youngsters ranged in age from 3 to 4.6 years of age. The foci of the investigation were: (a) to determine whether the facilitating effects over the first year of the study as reported in Saltz and Johnson (1974) were replicable; and, (b) to analyze the varying types of thematic-fantasy play ". . . employed in the original Saltz and Johnson (1974) experiment in an attempt to determine the variables that were critical to their results (p. 367)."

The investigation was based on Saltz and Johnson (1974) which trained preschoolers to enact fairy tales (such as "Red-Riding-Hood") over a six to seven month period. Based on the results of Saltz and Johnson (1974), Saltz, Dixon and Johnson (1977) noted that: (a) fantasy play would facilitate cognitive development to a greater degree than sociodramatic (i.e., realistic)

play; (b) fantasy play would foster greater comprehension of causal relations than sociodramatic play and would have ". . . a particularly strong effect on cognitive tasks that involved such comprehension (p. 368)"; (c) children reading and discussing fantasy tales should perform just as well as those who enact the story through fantasy role play; (d) the effects between youngsters using fantasy play and those employing sociodramatic play on cognitive and social measures should be similar; and, (e) verbal stimulation ". . . may prove to be a critical factor in the cognitive facilitation produced by thematic-fantasy play, particularly for disadvantaged children who may lack such stimulation at home (p. 368)."

The preschoolers were drawn from a low socio-economic population in Detroit, Michigan and randomly assigned to one of four experimental conditions: (a) thematic-fantasy-play; (b) fantasy discussion; (c) socio-dramatic play; and, (d) control conditions. The scores on the Peabody Picture Vocabulary Test were used to equate receptive language intelligence of the children between their respective conditions. All the children were pre-tested in the beginning and post-tested six to seven months later across each of the three years of the project. The assessments used were: (a) Peabody Picture Vocabulary Test (which was replaced with the French Picture Test of Intelligence during the second year of the project); (b) Story Interpretation Test ". . . to measure the ability of the children to relate to one another and to interpret causal relations between these events (Saltz, Dixon & Johnson, 1977, p. 371)"; (c) Taylor Fantasy Judgment Test to assess the youngsters understanding of realistic and fantasy situations using pictures; (d) Sequential Memory to assess abilities to sequentially order episodes in a story after hearing it; (e) the Borke Empathy measure to test the youngsters ability

to project feelings; (f) Impulse Control measures to assess delay of gratification; and, (g) Kagan's Matching Familiar Figures Test (MFF) to evaluate impulsivity and reflectivity. The youngsters assigned to the thematic-fantasy play group read and enacted fairy tales through fantasy role play and those in the sociodramatic play condition enacted realistic themes encountered on field trips and practiced common experiences through role play using realism. The participants in the fantasy discussion heard fairy tales were asked questions about their content and discussed them and those in the control condition cut and pasted and completed workbook pictures. The activities in the control were designed to permit children to meet in small groups and interact with adults as per the other three conditions.

The results of a 2 (i.e., play versus no play) x 2 (i.e., fantasy versus no fantasy) x 2 (i.e., above versus below median on pretraining IQ scores) x 3 (i.e., number of years of the project) analysis of variance indicated a significant main effect for play [$F(1/111) = 5.30$, $p < .05$], for IQ [$F(1/111) = 28.66$, $p < .01$] and no other effects proved to be significant. The results suggested ". . . the beneficial effects of play compared no play in post-training IQ ". . . [and] . . . occurred primarily for children with higher IQ scores prior to the onset of training (Saltz, Dixon, & Johnson, 1977, p. 373)." First, these results imply that for children who have acquired some prior level of intellectual competence thematic-fantasy and sociodramatic play tend to be most effective/beneficial. Second, Saltz, Dixon, and Johnson (1977, p. 333) noted that:

> improvement in IQ levels cannot be attributed to some type of regression to the mean, since such a regression would be most evident in children whose initial scores were lowest, not those whose initial scores were relatively high.

Third,

> . . . relatively small effects of the play-training conditions obtained in 1975, compared to the other 2 years . . . [of 1973 and 1974] . . . [with similar results occurring for IQ and other cognitive functions] . . . suggest that the depressed pretraining IQ scores actually reflect something about the intellectual functioning of the sample of children in the preschool during the 1975 program year (Saltz, Dixon, & Johnson, 1977, p. 373).

For the Story Interpretation Test, the results of the 2 x 2 x 2 x 2 analysis of variance indicated no significant main effects and one significant interaction effect of play by pretraining IQ [F (1/114) = 5.17, $p < .05$]. For the Fantasy Judgment Test, the results of a 2 x 2 x 2 x 3 analysis of variance indicated a significant play [F (1/180) = 4.68, $p < .05$], fantasy [F (1/180) = 8.17, $p < .05$]; and, median split IQ pretraining [F (1/180)=11.90, $p < .05$] effects. The play by year interation [F (1/180) = 4.77, $p < .05$] was the only interaction effect that was significant. The major nonsignificant results of the analyses on the Sequential Memory Test suggested that play, fantasy and program years had no effect on this dependent measure. On the Borke Empathy measure, the results of a 2 x 2 x 2 x 2, analysis of variance (with factor D over 2 rather than three years) showed a significant main effect for thematic-fantasy play [F (1.76) = 4.69, $p < .05$]. On assessing cognitive control over impulsivity, the results of the "Guardian of the Toy" task indicated that:

> . . . children trained in thematic-fantasy play or in sociodramatic play showed a superior ability to inhibit their impulsive responses only when given some type of cognitive distracting (i.e., "think") task to occupy themselves with during the waiting period (Saltz, Dixon, & Johnson, 1977, p. 376).

The results of analyzing the scores from the second delay of gratification task, "Trip to the Moon" resulted in no significant main or interaction effects. Combining the scores on the two delay of gratification tasks, the results suggested that the children on the thematic-fantasy and sociodramatic play groups ". . . were able to delay their impulses longer than those in the

two nonplay groups [F (1/99) = 5.73, $p < .05$]." In addition, children in the fantasy compared to those in the nonfantasy condition yielded significantly higher mean scores on the combined delay of gratification tasks [F (1/99) = 4.07, $p < .05$]. For the MFF test (used in 1973 as another impulse control measure), the results of the analysis suggested that the ". . . significant effect of play training is attributable almost totally to the thematic-fantasy condition (Saltz, Dixon, & Johnson, 1977, p. 373)." Finally, observing and recording whether youngsters performed fantasy or sociodramatic play, the results of the chi square analysis indicated that spontaneous sociodramatic play was more common than spontaneous thematic play [$x^2(1) = 4.82$].

On sum, the replicability of training in Saltz and Johnson (1974) in the present study led to increases: (1) in intellectual development as measured by IQ scores, (2) in ability to interpret sequential events for children above median IQ, (3) in distinguishing between reality and fantasy, (4) in delay of impulsive behavior (when combined delay of gratification tasks were used), and (5) empathy with other children. The second goal of isolating factors in thematic-fantasy play that produced positive effects in cognitive functioning suggested that:

> . . . not only do the results isolate some of the factors in thematic-fantasy play that were instrumental in producing the positive effects on cognitive functioning, this also had theoretical implications for processes involved in cognitive development (Saltz, Dixon & Johnson, 1977, p. 378).

The final evaluative intervention study reviewed in this article was Saltz and Johnson (1974). This research study, conducted over a six to seven month period, formed the basis for the longitudinal investigation of Saltz, Dixon, and Johnson (1977) which was previously summarized. The major focus of the study was to examine the effects of fantasy play intervention on 75 socially and economically disadvantaged youngsters, 44 boys and 31 girls.

The participants ranged in age from 2 years 10 months to 5 years 6 months with a median age of 3 years eight months. The rationale basic to the investigation was that imaginative play is:

(a) trainable (Feitelson & Ross, 1973, Freyberg, 1973 Smilansky, 1968, Marshall & Hahn, 1967)

(b) important for the development [of cognitive functioning and] other intellectual and social abilities (Piaget, 1962, Vygotsky, 1967, Werner, 1947)

(c) often underdeveloped in young children (Feitelson & Ross, 1973, Freyberg, 1973, Smilansky, 1968) (Saltz & Johnson, 1974, p. 623).

In addition, Saltz and Johnson (1974) distinguished between thematic-fantasy and sociodramatic play by noting that:

(a) both types involved role play using verbal/motoric enactments in a small group of children,

(b) thematic-fantasy employed more of structured play themes or story plots compared to sociodramatic play,

(c) thematic-fantasy play because of its structure should facilitate children's ability to view events as interrelated and ordered in time and space which theoretically at least, ". . . should promote the development of conceptual schemata or the integration of experiences in preschool children compared to sociodramatic play (Saltz & Johnson, 1974, p. 624),"

(d) thematic-fantasy compared to sociodramatic play involved real fantasy which ". . . required [children] to imagine and perform behaviors described to them in story narration which are never actually observed in real life (Saltz & Johnson, 1974, p. 624)," and,

(e) thematic-fantasy compared to sociodramatic play given the requirement of fantasy ". . . demands more than what is usually meant by imitative behavior so central to sociodramatic play; it demands behavior-a transition from symbolic story form into behavior form (Saltz & Johnson, 1974, p. 624)." This qualitative attribute should contribute to the use of symbols and to think in a creative manner.

The participants were assigned to one of four intervention groups: (a) thematic-fantasy, (b) dimensionality (i.e., labeling and categorizing stimuli along varying dimensions), (c) thematic-fantasy and dimensionality, and, (d) listening activity and other actions not related to thematic-fantasy

or dimensionality training. The youngsters were pre-tested on: (a) The Picture Completion subtest of the Wechsler Preschool and Primary Scale of Intelligence (WPPSI), (b) the Visual Reception and Visual Association subsets of the Illinois Test of Psycholinguistic Abilities (ITPA), and, (c) The Similarities subtest or the WPPSI. The first two tests measured nonverbal and their third assessed verbal intelligence. For the post-tests, the above three tests were again readministered. Other additional post-test measures were: (a) play observations to compare the amount of thematic-fantasy and sociodramatic play that occurred across conditions, (b) Borke Interpersonal Perception Test to assess empathy, (c) Picture and Object Memory Task to evaluate abilities to represent concrete materials versus pictorial representations in memory, (d) Story Memory Task to evaluate capacities of remembering a six part story sequence, and, (e) Story Telling Task to test for story-telling skills based on three sets of five cards representing three stories each.

The significant results of chi square analysis ($x^2 = 14.00$, df = 1, $p = .001$) between fantasy and control children on the amount of dramatic social free play suggested that "training in role play enactment of fairy tales apparently enhances the probability that preschoolers will engage in . . . play in school (Saltz & Johnson, p. 1974, p. 627)." On intelligence test scores from the WPPSI and ITPA, the results of the 2 (i.e., dimensionality versus dimensionality and thematic-fantasy training) analysis of covariance (ANOCOVA) showed significant main effects for thematic-fantasy [$F (1/29) = 7.35$, $p < .01$] and dimensionality [$F (1/29) = 11.8$, $p < .01$) but no significant interaction effects. Training in thematic fantasy play and dimensionality both appeared to facilitate intellectual functioning. With a 2 x 2 ANOCOVA using Interpersonal Perception Test scores, the results

suggested that thematic-fantasy yielded significantly higher scores than control children [F (1/37) = 6.32, $p < .05$], and ". . . learning to role-enact characters from children's folk tales apparently increases the ability of preschool children to understand and identify effective states of other children (Saltz & Johnson, 1974, p. 628)." The results of the analysis on Picture and Object Memory Task scores suggested that

> . . . memory for objects is superior to memory pictures of these same objects . . . [but] . . . thematic-fantasy play does not improve representational function for this type of rote memory (Saltz & Johnson, 1974, p. 628).

The results of the analysis on Memory for Stories Task scores showed that fantasy-play children yielded significantly higher scores than control children. On the Story Telling Task, the results of the analyses suggested that ". . . fantasy children made more of an attempt to connect and integrate the events in the story [than control youngsters] (Saltz & Johnson, 1974, p. 629)." The fantasy children had significantly larger mean scores than control children on total verbal output, made a greater number of inferential statements, and, used more connections in their story telling than control children.

In summary, Saltz and Johnson (1974, p. 629) noted that the:

> . . . thematic-fantasy play distinguished itself as an enjoyable workable and promising intervention tool which significantly affects a number of positive behaviors and abilities in preschool children.

Unlike dimensionality training, thematic-fantasy play was found:

> to be significantly associated with a higher incidence of spontaneous socio-dramatic play, superior performance on Borke's Interpersonal Test and better story-memory and story-telling skill on specifically constructed tasks (Saltz & Johnson, 1974, p. 629).

Summary and Conclusions

There were a number of similarities and differences between the evaluative intervention studies selected for review. For purposes of discussion, these comparisons are organized into the following sections: (a) results of the studies; and, (b) suggestions for possible further research.

Results of the Investigations. The results of all the studies surveyed showed that play and its selected forms can be used as a vehicle to expand the youngster's potential to make-believe for purposes of cognitive, social, emotional development, and growth in imaginativeness. Second and from a program perspective, the results of Johnson, Ershler, and Bell (1980) and Yawkey (1980) supported the proposition of Seavers and Cartwright (1979) and Tizard (1977) that stressed a relationship between programs based on child development theory and process and product outcomes of youngsters in these programs. More specifically, the theoretical child development orientations (e.g., cognitive-interactionist, maturationist) upon which programs rest can influence the young child's play exhibited in actual on-going programs for young children. The results of Johnson, Ershler, and Bell (1980) showed that children in discovery oriented programs performed significantly more functional but less constructive play and used a significantly less number of total transformations in symbolic play than those in the behavioral analytic program. Also, children immersed in programs based on social relationships curricula yielded significantly higher mean scores on imaginativeness compared to those in traditional programs and girls in the former performed significantly better than boys in the latter type of program on imaginativeness (Yawkey, 1980).

In addition, Kelly and Yawkey's (1978) results indicated that children in discovery programs using either fantasy play or reality play yielded

significantly higher scores on role play (and reading readiness) than those in traditional programs using either reality or fantasy play enactments. Although the results of Gebert and Yawkey (1980) did not indicate significant main effects for type of program on the role play component, the Keys to Reading and Houghton Mifflin programs in the final analysis were academic units of instruction used as a part of the daily program and both sets of commercial reading materials may have been based on similar rather than different educational philosophies of reading readiness.

Third, the results of Yawkey and Silvern (1978) showed that children who employed imaginative play to enact a story yielded higher mean scores than those in the comparison groups who heard, were questioned about but did not enact the episode on language growth measures. Further, children enrolled in fantasy yielded significantly higher scores than those in the reality, nonfantasy, or nonreality play groups on reading readiness and imaginative role play abilities (Kelly & Yawkey, 1978). Related to the effects of fantasy-thematic and sociodramatic-real play, the results of Saltz, Dixon and Johnson (1977) showed children with above median pretraining IQ scores across both play significantly increased their IQ compared to those not in these imaginative play groups. Further, on fantasy judgment scores, youngsters in sociodramatic-real and fantasy-thematic play with above median IQ yielded significantly higher scores than those in control groups with below median IQ. Finally, children in thematic-fantasy yielded significantly higher scores than those in nonthematic-fantasy play on showing empathy abilities and on combined scores for delay of gratification tasks. The youngsters enrolled in play groups showed greater impulse control than those in the two nonplay groups. In support, the results of Saltz and Johnson (1974) showed that

training in fantasy-thematic play (and in dimensionality) significantly facilitated cognitive functioning on subtests of the WPPSI and ITPA batteries. Further, youngsters in the fantasy-thematic compared to those in the control received significantly higher mean scores on measures of: (a) interpersonal perception, (b) memory for stories, (c) story telling, and, (d) total verbal output. Based on the results of selected evaluative intervention studies, thematic-fantasy compared to sociodramatic-real plan and/or control activities appeared to encourage cognitive, social and emotional abilities in young children to a significantly greater degree.

Fourth, in the Gebert and Yawkey (1980) investigation, the results suggested that whether or not children employed props in their sociodramatic play was not as important as whether or not they used sociodramatic play on role play measures. Related to the use of objects, it appears that using play props was more common in young children than not using them in their play regardless of whether they were enrolled in discovery or behavioral-oriented programs (Johnson, Ershler & Bell, 1980). Further, imagintaive play based on imitation rather than fantasy was more common in youngsters regardless of the child development oriented program in which they were enrolled (Johnson, Ershler & Bell, 1980).

Research Suggestions. The majority of the evaluative intervention studies reviewed have used varying types of imaginative play and different kinds of programs derived from child development orientations as independent variables in the research designs. And, some studies have included IQ and duration of the program (in years) as other independent variables in the design. The dependent variables were also markedly similar across these investigations. The dependent measures have included: (a) frequency of differing types of imaginative play and role playing, (b) IQ scores from standardized batteries, and, (c) other cognitive, social and/or emotional

measures such as reading readiness, impulse control, sequential tests of memory and empathy. All the studies have addressed the effects of training on imaginative play regardless of whether the play was adult guided or child directed. Although the results of the studies suggested that imaginative play (used as a vehicle to foster growth) could encourage development in varying degrees on a variety of measures, additional research is further needed to explore play as it effects cognitive and social capacities of young children. In addition, more research is needed to explore the specific effects of varying types of programs derived from child development theories on child's play. In this respect, conducting macro-analyses of particular characteristics of programs which mirror principles of cognitive-interactionist, behavioral analytic or maturationist theories and imaginative play are needed (Peters, Neisworth, & Yawkey, in press). With micro-analyses, research studies can also investigate the content (i.e., both process and product) of adult-child interactions and physical or environmental structuring of objects and materials which directly and indirectly transmit the theoretical ideology on which the program rests (Peters, Neisworth, & Yawkey, in press). Also, investigations which examine the role of imaginative play and language of young children in program settings are required to further understand the role of play as it relates to language acquisition and production (Pellegrini, in press, Yawkey, Askov, Cartwright, Dupuis, Fairchild, Yawkey, M., 1981).

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